

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>04R00893</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/017159</b>	International filing date ( <i>day/month/year</i> ) <b>18.11.2004</b>	Priority date ( <i>day/month/year</i> ) <b>08.01.2004</b>
International Patent Classification (IPC) or national classification and IPC <b>G02F1/13357 (2006.01), F21S2/00 (2006.01), F21Y103/025 (2006.01)</b>		
Applicant <b>SHARP KABUSHIKI KAISHA</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>8</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>2</u> sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-14 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 3, 5-6, 8-15 as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-2 received by this Authority on 10.08.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets fig. 1-11 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 4, 7
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-3, 5-6, 8-15</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims _____	YES
		Claims <u>1-3, 5-6, 8-15</u>	NO
	Industrial applicability (IA)	Claims <u>1-3, 5-6, 8-15</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p>Document 1: Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 140716/1988 (Laid-open No. 61020/1990) (Toshiba Corp.), 07 May 1990, page 14, lines 1 to 6; page 15, line 17 to page 16, line 8; page 16, line 17 to page 17, line 5; and fig. 5, 7 and 8 (Family: none)</p> <p>Document 2: JP 6-273761 A (Sony Corp.), 30 September 1994, paragraphs [0024] to [0027] and fig. 2 (Family: none)</p> <p>Document 3: JP 61-54150 A (NEC Home Electronics Ltd.), 18 March 1986, page 3, upper right column, lines 13 to 20 and fig. 3 (Family: none)</p> <p>Document 4: JP 11-271770 A (Toshiba Corp.), 08 October 1999, paragraphs [0012] to [0014] and fig. 2 (Family: none)</p> <p>Document 5: JP 11-295737 A (Casio Computer Co., Ltd.), 29 October 1999, entire text, all drawings (Family: none)</p> <p>Document 6: JP 2002-109935 A (Sanyo Electric Co., Ltd.), 12 April 2002, paragraph [0024] and fig. 3 &amp; US 2002-36905 A1</p>		

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Document 7: CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model Application No. 14580/1992 (Laid-open No. 75734/1993) (Fujitsu Ten Ltd.), 15 October 1993, paragraphs [0016] to [0022] and fig. 1 (Family: none)

The inventions set forth in claims 1 to 3 and 14 to 15 do not involve an inventive step in the light of documents 1 and 3, which are cited in the international search report, and document 7, which is newly cited.

Document 1 discloses an illumination device wherein the uniformity of the illumination distribution is improved by covering the curved section of the lamp with a lamp holder in order to block the light that is emitted from the curved section.

A comparison of the invention set forth in claim 1 of the present application and the invention disclosed in document 1 revealed that said inventions differ in that the invention set forth in claim 1 of the present application comprises a plurality of light source lamps and is configured so that the curved sections of the light source lamps are located on the outside of the effective display region, whereas document 1 does not mention the features in question.

Meanwhile, document 3 discloses a backlight for a liquid crystal display device, wherein the meandering sections that connect the straight sections in the glass bulb of the cold cathode discharge tube are arranged so as to protrude beyond the liquid crystal display panel and the reflector.

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With regards to the feature wherein the invention is equipped with a plurality of lamps, document 1 discloses a configuration that employs a W-shaped lamp while document 2 discloses a configuration that employs an S-shaped lamp, and these lamps can be considered to exhibit effects similar to those of configurations that employ a plurality of U-shaped lamps.

Furthermore, liquid crystal display-illuminating devices that are equipped with a plurality of U-shaped lamps and configured so that the curved sections of the lamps are located on the outside of the display region are well known to a person skilled in the art, as disclosed in document 7 for example.

Such being the case, it would have been easy for a person skilled in the art to conceive of configuring the invention that is set forth in claim 1 of the present application by using a plurality of lamps or by configuring so that the curved sections of the lamp, which are covered with a lamp holder, are located on the outside of the effective display region, as disclosed in document 3 or document 7, in the invention disclosed in document 1.

With regards to claims 2 to 3, the meandering sections in the glass bulb of the cold cathode discharge tube disclosed in document 3 can be understood to consist of two or more curved sections and one or more straight sections that are present between said curved sections (refer to fig. 3).

The invention set forth in claims 5 to 6 does not involve an inventive step in the light of documents 1 to 3, which are cited in the international search report,

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and document 7, which is newly cited.

Document 2 discloses a backlight for a liquid crystal display device, wherein the regions of the diffusion plate which face the U-shaped portions of the fluorescent tube are masked with a black mask by means of a printing technique or the like in order to prevent irregularities in the brightness of the backlight.

The invention set forth in claims 8 to 9 does not involve an inventive step in the light of documents 1 and 3 to 4, which are cited in the international search report, and document 7, which is newly cited.

Document 4 discloses a backlight unit for a liquid crystal display device, wherein one side of the center section of a fluorescent tube that has a squared-off U-shape is covered with a coating film or a piece of tape that is capable of blocking light.

The invention set forth in claims 10 to 11 does not involve an inventive step in the light of documents 1, 3 and 5, which are cited in the international search report, and document 7, which is newly cited.

Document 5 discloses a backlight comprising an L-shaped fluorescent tube, wherein a light absorbing pattern (6b) is provided to the portion of the reflecting sheet in the vicinity of the fluorescent tube by means of a printing technique (paragraph [0006]); therein, document 5 further indicates that the light absorbing pattern (6b) consists of grey dots, and that the pattern may be changed so as to accommodate irregularities in the brightness of the backlight (paragraph [0006]).

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The invention set forth in claim 12 does not involve an inventive step in the light of documents 1 to 3 and 5, which are cited in the international search report, and document 7, which is newly cited.

With regards to claim 12, document 2 discloses a feature wherein a black mask is formed by means of a printing technique, while document 5 discloses a feature wherein a light absorbing pattern is provided by means of a printing technique.

The invention set forth in claim 13 does not involve an inventive step in the light of documents 1 to 6, which are cited in the international search report, and document 7, which is newly cited.

The use of a gradiated dimming treatment is merely a simple design matter that can be configured in an appropriate manner by a person skilled in the art. For example, document 6 discloses a feature wherein a black or neutral grey pattern is printed upon a light blocking sheet that is used in a surface light source device, and the pattern in question is formed so that the light blocking characteristic thereof decreases gradually from the bottom end (i.e., the light source side) of the light blocking sheet towards the top end thereof.

In other words, the inventions set forth in the claims of the present application involve combinations of a plurality of configurations for dimming or blocking the light that is emitted from the curved sections of the light source lamps; however, the abovementioned combinations are merely amalgamations of configurations that are disclosed in the documents that are cited in the

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international search report or in the newly cited  
document.